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AUTHOR Roedell, Wendy C.
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ABSTRACT

The author describes how intellectual and academic strengths develop in young children and how children's daily behavior can reveal the presence of extraordinary capability. The relationships between the emergence of advanced intellectual skills and development of physical and social competencies are discussed. The implications of children's development for the educational environments of intellectually gifted young children are considered. Among components of an ideal program are guided opportunities for developing independence, a combination of informal kindergarten format and advanced content matched to children's skills, and performance expectations adapted to children's uneven development in intellectual, physical, and social domains. (SB)

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THE DEVELOPMENT OF GIFTEDNESS

IN YOUNG CHILDREN

by Wendy C. Roedell, Ph.D.

Paper presented at the Annual
Meeting of the American Educational
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Northwest Gifted
Education Center

Henry Reed, Clearinghouse Director

Wendy Roedell, Ph.D., Consultant, Gifted Education

Don Lee, Director of Professional Writing

Louise Wasson, Coordinator, Business/Industry for Gifted Education

DEPARTMENT OF CURRICULUM AND INSTRUCTION

James J. Kiefert, Ed.D., Assistant Superintendent

ROBERT MARUM, SUPERINTENDENT



Educational Service District No. 121

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The Development of Giftedness in Young Children

by Wendy C. Roedell, Ph.D.
Northwest Gifted Education Center
ESD 121, Seattle, Washington

My remarks in this paper reflect a dual perspective based on my background of research combined with practical application. I first became involved in gifted education in 1975, when my colleague Nancy Jackson and I became associate investigators in a longitudinal study of intellectually gifted children directed by the late Halbert B. Robinson at the University of Washington. Our goal was to identify preschool aged children who demonstrated advanced development in one or more cognitive domains, to document and describe their precocity, and to follow the course of their development as they matured. As the unique educational needs of these children became evident, we developed a preschool/kindergarten program to serve some of them. I directed that program for four years. Details of the Seattle project have been described elsewhere (Roedell, Jackson, & Robinson, 1980; Robinson, Jackson, & Roedell, 1977; 1978). The project is currently continuing under the direction of Nancy Robinson.

More recently, I have spent the last two years as a consultant for gifted program development in public schools, and have been able to observe the ways different school districts have attempted to meet the needs of intellectually advanced students. Although current definitions of giftedness include a broad range of ability areas, the focus here will be on concerns related to extraordinary intellectual and academic capability.

In the first section of this paper, I will describe how intellectual and academic strengths develop in young children, and how children's everyday behavior can reveal the presence of extraordinary capability. Secondly, I will discuss the relationships between the emergence of advanced intellectual skills and development of physical and social competencies. Finally, I will address the question of the implications of a developmental point of view of giftedness for educational programming.

Early Development of Intellectual and Academic Giftedness

A developmental point of view implies a focus on the emergence of abilities that change over time and are manifested in different ways at different developmental stages. Intellectual competencies and their behavioral expression are shaped through developmental processes influenced by genetic tendencies, environmental experiences, and individual behavioral style, or temperament. Early observation of emerging skills is essential for identification of children whose competencies are extraordinarily advanced.

Young children with advanced mental competencies may or may not do well on standardized tests. Young children's test performance is notoriously unreliable. Part of the unreliability arises from the fact that young children may not be at their best during a test session administered by an unfamiliar adult in new and different surroundings. Some children may be more interested

in playing their own games with the test materials than in following tester's directions. Others may be unwilling to communicate, thus hampering performance on verbally loaded items. Test successes in such cases frequently provide more accurate information than test failures. When a child performs well on a standard test, there is little doubt about the child's advanced abilities. When a child does not obtain a high score on a test, however, it is difficult to distinguish between lack of ability and lack of concentration, effort, or self-confidence. In studying the emergence of giftedness in young children, then, it is wise to rely on something more than a battery of tests.

Children's developing competence can be observed in their everyday behavior. As children develop linguistic competence, for example, their conversation increases in complexity and their working vocabulary expands. A successful investigation of the early development of extraordinary competence must focus on manifestations of that competence in children's ongoing behavior. The obvious partners in such an endeavor are parents, who have a unique opportunity to observe their children's ongoing behavior in a variety of settings. At the Seattle project, we found that parents can be depended upon to produce reliable descriptions of their children's favorite pasttimes, and often recall in detail instances of outstanding performance which might indicate unusually advanced skills. The parent questionnaire developed at the Seattle project has shown a positive relationship with children's test performance at age four or five, whether the parent information is obtained concurrently with test performance or at an earlier age.

Early verbal ability can be detected from parent reports of the early emergence of complex sentences and advanced vocabulary. One mother, for example, reported that at age two her daughter habitually used such complex sentences as, "I'm trying to figure out where I left my dancing shoes."

Parents report fascinating descriptions of early spatial ability. One 18-month-old was described as carrying his puzzles into his crib at night, so that he could put them together in the dark. A 3-year-old liked to put together two or three puzzles at a time to keep from getting bored. Still another boy was passionately fond of taking things apart and putting them back together, and dismantled a carburetor when only three. At 20 months, one boy, when asked what would happen if a block were removed from his structure, replied, "the bridge would fall down," showing unusual understanding of the laws of physics. Artwork and early construction are other areas where advanced understanding of spatial relationships can be observed. Early reading, early understanding of mathematical concepts, and extraordinary feats of memory have also been described by parents, and in most cases confirmed at some point by test scores.

Close studies of children's intellectual behavior as reported by parents and as observed in test sessions reveals that gifted young children often show peaks of extraordinary performance, rather than equally high skill levels in all cognitive ability areas. Even a somewhat narrow focus on the intellectual and academic aspects of giftedness does not allow for a simple definition easily operationalized by one or two measures. The child who learns to read at age two, or who shows unusually advanced spatial reasoning ability, may not be the child with the highest IQ or the earliest language development. (For more details on patterns of intellectual development,

see Roedell, Jackson, & Robinson, 1980). In addition, children with the same score on an IQ test might show vastly different patterns of abilities and interests, since there are many paths to high achievement on an IQ test.

Two children in our preschool come to mind. Both scored above the scale limits on the Stanford-Binet during the preschool years. One learned to read at age two, and by age four was enjoying fourth grade level books such as Little House on the Prairie. She organized her friends in complex fantasy activities, and at age five wrote a poem that was published in Cricket magazine. Bored during an administration of the Stanford-Binet, she proceeded to act out the definitions of the vocabulary words, while still achieving a score beyond the scale limits. In contrast, consider another equally brilliant child who did not learn to read until age five. In addition to unusual performance on the Binet, this young man also scored extraordinarily well on the WISC-R Block Design subtest. He was fond of puzzles and challenging tangrams, a whiz at constructing mathematically precise graphs, and capable of drawing an accurate map of the preschool yard. IQ scores alone cannot begin to demonstrate the extreme diversity that can be found among young intellectually gifted children.

Uneven, unique patterns of development can be observed when looking at a cross section of children. In addition, uneven development is frequently evident in the developmental pattern of a single child. In some cases, it seems as though children's abilities are developing in spurts, guided by changes in interest and opportunity. For example, one boy, whom I shall refer to as Bruce, scored a modest 127 on the Stanford-Binet at age three, and 116 four months later on the McCarthy Scales of Children's Abilities. During the Binet session, however, he gave evidence to support his mother's claim of unusual reading ability by sounding out words such as "buttercup" from a book in the testing room. Bruce's mother also brought samples of his artwork to the session, showing Bruce's passion for including words and numbers in his drawings. He had labeled a car "BUICK", for example, and placed it near a sign that said "PARK." By age four years, eight months, Bruce's Binet IQ had risen to 152, and future test performances were equally high.

Bruce's history of performance on the Peabody Individual Achievement Test (PIAT) gives further evidence of spurts in development. Although percentile norms for the PIAT are not available for children younger than age five, the test is useful for documenting advanced academic skills in preschool children. At age four, Bruce's grade equivalent scores on the PIAT were 1.7 in Mathematics and 3.5 in Reading Recognition. By age five years, eight months, his scores showed a rather even rate of development, with grade equivalents of 3.3 in Mathematics and 5.8 in Reading Recognition. At this point, Bruce's interest in reading began to level off, and he began to focus his attention on mathematics. His kindergarten teacher reported his comment that he didn't enjoy reading very much, but that he "knew most words." He was more interested in reading alphabet and number books than in reading long narratives. Bruce's math skills that year were prodigious, and he became fascinated with mathematics activities. He could compute three column addition problems in his head. When his teacher decided he was ready to learn about multiplication, she spent a few minutes explaining it to him and he responded by saying, "Oh, . . . so 5 times 5 must be 25, and 4 times 6 must be

24 . . ." and so on. Clearly he had been doing multiplication for some time, but had not been able to label the process. The PIAT administered at age six years reflected his change in interests, showing a large jump to grade equivalent 7.4 on the Mathematics subtest, with only a small increase to grade equivalent 6.6 on Reading Recognition. The tester reported that Bruce took a long time figuring out the math problems, but seemed to enjoy the challenge.

Other children showed equally uneven patterns of development which seemed to progress in spurts. Reading, for example, might develop almost overnight. Children who knew all their letters and letter sounds by age two and one half might remain at that level for some time, until age four or five, and then in a matter of months develop fluent reading skills at the third or fourth grade level. While some of this unevenness in test performance may be due to unreliability in the tests used, observations of ongoing behavior support the hypothesis that in some children advanced intellectual and academic skills develop in spurts. More research clearly needs to be done to explore whether this phenomenon of spurts in the development of advanced abilities is common among gifted children, and to determine what variables mediate the onset of a spurt. Certainly the findings will have vast implications for the development of educational programs for these children.

Physical and Social Development

In developing programs for gifted young children, it is important to consider the question of the relationship between advanced intellectual development and development of physical and social skills. In the area of physical development, recent researchers have refuted Terman's findings of superior physical development among the gifted. Hildreth (1954) and others have noted that the supposed physical superiority found among gifted children may be due to the fact that most of the children in the older studies came from upper socioeconomic neighborhoods, where nutrition and health care practices tended to be superior to those in the general population. When socioeconomic status is controlled, these differences disappear. One study of gifted preschool children (Leithwood, 1971) did find relationships between Binet IQ and children's ability to perform complex motor tasks, although there was no relationship between IQ and simple motor tasks involving such skills as strength and balance. The evidence seems to indicate that intellectually gifted children's performance in the physical domain may only be advanced to the extent that the physical tasks involve cognitive recognition.

Likewise, at the Seattle project we found that intellectually advanced children in our preschool tended to possess some advanced social-cognitive skills, but did not necessarily demonstrate those skills in their social behavior. For example, three and four year old children whose IQs were at or above 130 showed advanced understanding of the constancy of gender across time and situations (Miller, et al). Intellectually advanced preschool children were also advanced in their ability to conceive of many different solutions to hypothetical social conflict situations (Roedell, 1978). When administered the Preschool Interpersonal Problem-Solving Test (PIPS) developed by Spivack and Shure (1974), children with higher IQs had more ideas about ways

to solve social conflicts, and also had more ideas about ways for children to interact cooperatively. However, these advanced social cognitive skills were not reflected in children's behavior. Children with more ideas about ways to interact cooperatively did not in fact engage in more cooperative behavior when they were observed in the classroom. Cooperative interaction did increase overall during the year as children participated in a program that emphasized social interaction skills. Guided social interaction experience was necessary to help these children translate their advanced intellectual understanding into concrete behavior.

Further research is clearly necessary to tease out which aspects of social development might be advanced as a result of advanced intellectual development.

In summary, available evidence indicates that giftedness in the intellectual realm may only predict advancement in other areas to the extent that intellectual activity is involved. It is not uncommon to find gifted young children suffering from a vast gap between their advanced intellectual skills and their less advanced physical and emotional competencies. At age three, one boy in our preschool could read at the third grade level, could converse intelligently about abstract concepts such as time and death, and yet was unable to hold a pencil or climb a ladder because of a lag in the development of both fine and gross motor skills. This same child became easily excited and engaged in wild silly behavior, progressing to tantrums when things didn't go his way.

One additional factor which influences the expression of children's advanced abilities is behavioral style, or temperament (as described by Thomas and Chess, 1977). The child described above was possessed by a particularly flamboyant style, which ensured that he would frequently be the center of involvement in a classroom. Another child with a similar pattern of development might be less noticeable if the child were endowed with a quiet, unassuming style, without exhibiting great extremes of emotion. Some teachers may, in fact, tend to overlook the abilities of a child who is hesitant to become involved in new situations (Gordon and Thomas, 1967).

Checklists used in identifying gifted children often include characteristics that reflect temperament rather than actual skills or abilities. Such checklists should be used with caution, since a child who is not responsive to new stimuli, persistent, well-organized, or enthusiastic about learning new things may well be the one whose real strengths are overlooked and ignored. A gifted child with a difficult temperament filled with vast and passionate emotional extremes and a notable lack of patience for routine or dullness may be one whose adjustment to the regular classroom will be the most difficult.

Using a questionnaire developed by Thomas and Chess (1977), we found that parents of children in the Seattle project described them as varying widely on temperament characteristics. Initial analyses indicated that children with higher IQs tended to be described as slightly more persistent, with longer attention spans, than children with lower IQs. However, the overlapping range between groups was wide. Teachers should not forget that advanced intellectual skills are not always accompanied by positive temperament styles.

Social guidance at an early age can help such children develop habits of perseverance, task persistence, and achievement orientation which will allow them to make the most of their intellectual gifts. Gifted adults do not spring into the world fully formed, with all their abilities fully developed, their creativity totally unleashed, and their determination firmly forged.

Educational Environments for Intellectually Gifted Young Children

Parents and educators are often at odds regarding decisions about the best educational placement for young gifted children. "Bill doesn't belong in kindergarten!" the parent cries. "Look, he's reading at the fourth grade level, and has already learned two-column addition." "He certainly doesn't belong in first grade!" answers the teacher or principal. "He hasn't learned to tie his shoelaces, he can't hold a pencil properly, and he still has tantrums. If he were truly gifted, he wouldn't have these faults."

The problem in this continuing controversy is that both parties are correct. Some gifted children entering kindergarten have acquired academic skills far beyond those of their age peers. The academic content of kindergarten was mastered by such children when they were three years old. However, the physical and social development of these children may be on a par with that of other five-year-olds, making an accelerated placement a mismatch as well. The usual solution is to place a child like Bill in a program matched to his weaknesses, rather than his strengths. Bill will probably end up in kindergarten, where his advanced intellectual development will be a burden to his teacher and an embarrassment to his peers. Gifted programs in most school districts are designed to meet the needs of older students. Children in kindergarten are rarely included in such programs, which often do not begin until third or fourth grade. Curriculum approaches usually assume that gifted learners are self-directed, independent students capable of carrying out extensive projects with minimal assistance. The result of these policies is that many gifted young children simply do not fit into any existing program option.

The obvious solution to this problem is the development of gifted programs with an early childhood focus. Such programs should be designed to challenge each child's strengths, while at the same time providing experiences for development in weaker areas. An ideal program would provide guided opportunities for developing independence in learning to prepare children for the expectations teachers in gifted programs will have for them later on. The program format would combine the informal style of kindergarten classrooms with advanced content matched to the children's advanced intellectual and academic skills. Appropriate acceleration would be made in subject matter without expecting equally accelerated physical and social skills.

As subject matter would be adapted to each child's accelerated rate of learning, provision would need to be made for appropriate placement in following years. Ideally, a continuous educational program would be developed which would allow children to progress at their own developmental rate through an enriched core curriculum. Performance expectations would be adapted to match children's uneven development in intellectual, physical, and social domains. Individual planning would be a crucial element in such a program.

The program described above should not be limited to children who are equally advanced in all areas of development. Too frequently, children are only identified as gifted if they achieve the ideal personality described in the literature as that of a "Terman child." In fact, children whose brilliant minds are not matched by mature social development or competent physical skills are often in greater need of special programming than are children who are moderately advanced in all areas. A program that emphasized academic challenge along with age-appropriate physical activities and a strong social skills training curriculum can help such children develop necessary competencies in these areas without stifling cognitive growth. An appropriate social skills curriculum includes emphasis on developing independence in learning, assertiveness in expressing needs and emotions, social sensitivity in understanding other people, friendship making skills, and social problem solving skills. An approach that takes advantage of advanced intellectual development will involve children in discussions that help them utilize their intellectual abilities to analyze and improve their social behavior.

One stumbling block often cited by school districts as an argument against developing programs for gifted kindergarten children is the identification issue. What if we identify children as gifted at age five, and later on they turn out to be average? How can we tell if a child is "truly gifted", as opposed to being "just precocious." Arguments ensue about what it means to be truly gifted at age five. The solution is to examine children's educational needs as they occur developmentally, and to stop worrying about the mystique of the "truly gifted." Children who are advanced in their development of intellectual and academic skills can be identified in their preschool years through a combination of information from parents and from individual assessment (see Roedell, Jackson, & Robinson, 1980.) Placement of such children in regular kindergarten programs causes nothing but frustration, and often turns a youthful zest for learning into early disillusionment with the educational system that becomes increasingly difficult to correct. Those children who "don't fit" because of their advanced skills can be placed in a special program geared to match their uniqueness without concern about whether or not they are "truly gifted." Their developmental level at the time of placement qualifies them for special programming at that particular time. Appropriate placement in other district programs can be determined as they leave the early childhood program for advanced learners. Placement in a special program that is appropriate at age five need not guarantee placement in a similar program at age seven or eight. Likewise, children whose gifted potential has not yet been demonstrated in advanced behavior can be placed in special programs later on, as their giftedness matures. Not being identified for a special program at age five need not guarantee exclusion from special programming for the rest of a child's educational career.

Identification for such a program could take place at the time parents register their child for kindergarten. Often at this time districts ask parents to complete a questionnaire designed to detect potential learning difficulties. The same questionnaire could be adapted to detect areas of cognitive and academic advancement which would make placement in a regular kindergarten program inappropriate. Identified students might be placed in a special classroom, or might be clustered in the classrooms of trained teachers who could

devise programs for them in the context of the regular kindergarten program. It is much easier to deal with a group of students at similar skill levels than it is to deal with a single student whose skills are out of step with those of the rest of the class.

Models for such programs have been developed. The Child Development Preschool at the University of Washington has developed a kindergarten program in response to the lack of options available for students graduating from the preschool component. The Astor program and the Hunter College program here in New York serve young gifted children. A program at Chapel Hill, North Carolina has been developed to serve preschool and kindergarten age children who are gifted and handicapped. I could list other examples. The point is, however, that these models have not been widely adopted and used within the public education system. Giftedness which develops early requires nurturance, or it may wither before a child becomes developmentally mature enough to qualify for existing program options.

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